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Quadrivalent Human Papillomavirus
AGAINST THE MOST COMMON SEXUALLY TRANSMITTED

By Christine A. Garcia, MPH, and Kathe Gustafson, MPH

Human papillomavirus (HPV) is the most common sexually transmitted infection (STI) worldwide, causing genital warts and nearly all cases of cervical cancer. In the United States, it is estimated that 20 million people are currently infected with HPV and that approximately 6.2 million new people will become infected this year (1). Approximately 70 percent of cervical cancers result from infection with HPV genotypes 16 and 18 (2). The American Cancer Society estimates that there will be 9,710 new cases of cervical cancer and 3,700 deaths from cervical cancer in the United States in 2006 (3).

On June 8, 2006, the U.S. Food and Drug Administration (FDA) licensed a live, quadrivalent human papillomavirus vaccine (trade name Gardasil, Merck & Co., Inc.) for use in females age 9–26 years. The Advisory Committee on Immunization Practices (ACIP) voted at their June 2006 meeting to recommend the routine use of quadrivalent HPV vaccine as a three-dose series for females ages 11–12 years. Quadrivalent HPV is also recommended for females ages 13–26 years who did not complete or receive the vaccine when they were younger. The series can be started in females as young as nine years. This article summarizes information about the use of this new vaccine (www.cdc.gov/nip/vfc/acip_vfc_resolutions.htm). When available, ACIP's final recommendations as well as any updated vaccine information will be posted on the CDC website (www.cdc.gov/nip).

> In the United States, it is estimated that 20 million people are currently infected with HPV and that approximately 6.2 million new people will become infected this year. Approximately 70 percent of cervical cancers result from infection with HPV genotypes 16 and 18. The American Cancer Society estimates that there will be 9,710 new cases of cervical cancer and 3,700 deaths from cervical cancer in the United States in 2006.

Disease Epidemiology and Vaccine Information

Human papillomavirus types 16 and 18 cause approximately 70 percent of cervical cancer cases along with some cases of the other, less common anogenital cancers and chronic infections of the head and neck. Most HPV infections of the head and neck are not malignant cancers but result in recurrent benign conditions such as warts. HPV types 6 and 11 cause approximately 90 percent of genital warts. Quadrivalent HPV vaccine is a prophylactic vaccine against human papillomavirus type 6, 11, 16, and 18, and is not intended as a treatment for active disease or current infection. The vaccine has not been shown to protect against disease caused by non-vaccine HPV types.

Gardasil is a non-infectious recombinant, quadrivalent vaccine prepared from highly purified virus-like particles (VLPs) of the major capsid (L1) protein of HPV types 6, 11, 16, and 18. The L1 proteins are produced by fermentation in recombinant yeast cells. Quadrivalent HPV vaccine is a sterile liquid suspension that contains the adsorbed VLPs of each HPV type, aluminum-containing adjuvant, and purification buffer, and does not contain any preservative or antibiotics.

In clinical trials, women who were not infected with the HPV types 16 and 18 prior to dose one and through one month post-dose quadrivalent HPV vaccine had an efficacy of 100 percent against high-grade cervical, vulvar, or vaginal precursors [CIN2/3, AIS, VIN2/3, ValN2/3] associated with HPV types 16 and 18. Quadrivalent HPV vaccine had an efficacy of 96 percent against any grade of cervical intraepithelial neoplasia (CIN) [CIN1, CIN2/3] or adenocarcinoma in situ (AIS) related to HPV types 6, 11, 16, and 18. The vaccine had an efficacy of 99 percent against genital warts associated with HPV types 6, 11, 16, and 18. The vaccine does not protect against HPV types acquired prior to vaccination.

Recommendations for Vaccine Use

Routine immunization with three doses of quadrivalent HPV vaccine is recommended for females 11–12 years of age. The series can be started in females as young as nine years of age. Catch-up vaccination is recommended for females 13–26 years of age who have not been vaccinated previously or who have not completed the full vaccine series. Ideally, the vaccine should be administered

About the Authors: *Christine A. Garcia, MPH, is a community health program specialist with the County of San Diego Immunization Branch. Her focus areas include adolescent and health disparities immunizations. Kathe Gustafson, MPH, is the president of California Infant Immunization Initiative (CI3) and serves on several national committees on immunization practices. In July 2006, she retired from her position as chief of the County of San Diego Immunization Branch.*

Recombinant Vaccine:
INFECTION WORLDWIDE

before potential exposure to HPV through sexual contact; however, females who are already sexually active should still be vaccinated.

At present, cervical cancer screening recommendations have not changed for females who received the HPV vaccine, as 30 percent of cervical cancers are caused by HPV types that are not prevented by the HPV vaccine. Providers should continue to educate women about the importance of cervical cancer screening. Quadrivalent HPV vaccine should be administered intramuscularly as a series of three separate 0.5 mL doses. The second dose should be given two months after the first dose, and the third dose should be given six months after the first dose. The vaccine may be given at the same

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The Advisory Committee on Immunization Practices (ACIP) voted at their June 2006 meeting to recommend the routine use of quadrivalent HPV vaccine as a three-dose series for females ages 11–12 years.

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visit when other age-appropriate vaccines are provided, such as Tdap and MCV4.

Potential Vaccine Reactions

Common Side Effects

The most frequently reported serious adverse events in trials were headache (0.03% vs. 0.03% placebo), gastroenteritis (0.03% vs. 0.01%), appendicitis (0.02% vs. 0.01%), and pelvic inflammatory disease (0.02% vs. 0.01%). Other serious adverse events were rare. Post licensure safety studies will be conducted to more closely assess safety of the vaccine. Minor adverse events reported include pain (84%), swelling (25%), redness (25%), and pruritis (3%) at the injection site. Remember to report suspected reactions to the HPV vaccine or other vaccines to the Vaccine Adverse Events Reporting System (VAERS) at (800) 822-7967 or at http://vaers.hhs.gov.

Contraindications

- History of immediate hypersensitivity to yeast or to any vaccine component is a contraindication.

Precautions

- Quadrivalent HPV vaccine can be administered to females with minor acute illnesses (e.g., diarrhea or mild upper respiratory tract infections, with or without fever).
- Vaccination of people with moderate or severe acute illnesses should be deferred until after the illness improves.

Pregnancy

- Quadrivalent HPV vaccine is not recommended for use in pregnancy. The vaccine has not been associated with adverse outcomes of pregnancy or adverse events to the developing fetus. However, data on vaccination during pregnancy are limited.
- Any exposure to vaccine during pregnancy should be reported to the vaccine pregnancy registry at (800) 986-8999.

Quadrivalent HPV vaccine can be given to females who have an equivocal or abnormal Pap test, a positive Hybrid Capture II(c) high risk test, or genital warts. Vaccine recipients should be advised that data from clinical trials do not indicate the vaccine will have any therapeutic effect on existing Pap test abnormalities, HPV infection, or genital warts. Vaccination of these females would provide protection against infection with vaccine HPV types not already acquired. Females who are immunocompromised either from disease or medication can receive the vaccine; however, the immune response to vaccination and vaccine effectiveness might be less than in females who are immunocompetent. Lactating women can receive quadrivalent HPV vaccine.

Conclusion

For more information, a question and answer sheet on HPV disease, and the HPV vaccine can be found at www.cdc.gov/nip/vaccine/hpv/hpv-faqs.htm. The County of San Diego Health and Human Services Agency Immunization Branch has developed "HPV Vaccine: A Fact Sheet for Providers," which summarizes these recommendations and provides talking points in response to frequently asked parent questions. This document can be accessed at www.sdiz.org in the healthcare provider section or from your immunization management consultant. **SDP**

References

1) Cates W, Jr. Estimates of the incidence and prevalence of sexually transmitted diseases in the United States. American Social Health Association Panel. Sex Transm Dis. 1999; 26(4):Suppl):S2-7.
2) Bosch FX, Manos MM, Munoz N, Sherman M, Jansen AM, Peto J, et al. Prevalence of human papillomavirus in cervical cancer: a worldwide perspective. International biological study on cervical cancer (IBSCC) Study Group. J Natl Inst 1995; 87: 796-802.
3) American Cancer Society. Cancer facts and figures 2006. Atlanta (GA): ACS; 2006. Available at www.cancer.org/downloads/STT/CAFF2006PWSecured.pdf. Retrieved December 12, 2006.

San Diego County Healthcare Stats

San Diego County Immunization Branch conducts an annual random digit dialing (RDD) telephone survey of the residents of San Diego County. One of the surveys conducted this year is that of 582 parents/legal guardians of San Diego County adolescents. The adolescent survey focuses on the immunization status among adolescents age 11–15 years in order to determine vaccination coverage levels for adolescents residing in San Diego County, identify trends between 2003 and 2006, and identify opportunities for new vaccine education (1). Results from the above survey included the following:

- 36.9% of respondents have heard of the new HPV vaccine.
- 59.8% of respondents have never heard of the new HPV vaccine.
- 53% of all respondents would want their child to receive the new HPV vaccine*.
- 36.6% of respondents did not know whether they would want their adolescent to receive the new HPV vaccine*.
- 51.9% of parents/legal guardians would want their daughters to receive the HPV vaccine compared to 39.3% of parents/legal guardians with sons. Parents of adolescent girls were significantly more likely (p-value .010) to want the HPV vaccine for their child (2).

To request additional health statistics describing health behaviors, diseases, and injuries for specific populations, health trends and comparisons to national targets, please call the County's Community Health Statistics Unit at (619) 285-6479. To access the latest data and data links, including the community profiles and the 2004 core public health indicator document, go to www.sdhealthstatistics.com.

* Before responding, those who have never heard of the new vaccine were told the vaccine is used to prevent cervical cancer.

1) RDD Telephone Survey, County of San Diego HHSA Immunization Branch, 2006.
2) Ibid.

New Myocardial Infarction Treatment System

STEMI RECEIVING CENTERS

By BRUCE E. HAYNES, MD

A new cardiac care system now sends patients with ST elevation myocardial infarction directly to hospitals with cardiac catheterization laboratories for angioplasty or stent placement. Recent evidence shows this will diminish door-to-balloon times, improve outcomes, and reduce mortality from acute myocardial infarction.

RECENT TECHNOLOGY GIVES paramedics the ability to perform a full 12-lead electrocardiogram in the field with machine EKG interpretation that identifies patients with ST elevation myocardial infarction (STEMI). Patients with chest pain and a STEMI on the EKG are now triaged to one of 12 hospitals designated as "STEMI Receiving Centers": Sharp Chula Vista, Scripps Mercy Chula Vista, Alvarado, Scripps Mercy, UCSD Hillcrest, UCSD Thornton, Scripps La Jolla, Sharp Memorial, Sharp Grossmont, Scripps Encinitas, Tri-City, and Palomar. U.S. Naval Hospital Balboa is also designated and should join the system in the near future.

A field 12-lead allows diagnosis of STEMI and avoids triage of patients with undefined chest pain, unstable angina, or non-STEMI acute coronary syndromes. The program's goals are rapid access to primary percutaneous interventions (PCI) and assuring door-to-balloon times are as low as possible, especially under 90 minutes. Ultimately, it is anticipated that most patients will eventually have door-to-balloon times under 60 minutes.

Evolving medical literature suggests primary PCI has a number of benefits over traditional use of intravenous thrombolytics in STEMI patients. Randomized clinical trials and a number of meta-analyses (including Keeley et al, Lancet, 2003) demonstrate that patients receiving primary PCI are more likely to survive, have fewer nonfatal reinfarctions, and fewer strokes. Other benefits are the availability of adjunctive treatments such as intra-aortic balloon pump placement and other invasive procedures.

This process began several years ago with a "summit" among community physicians, hospital personnel, emergency medical services providers, and county emergency medical services. This group considered the evolving literature and experience with emergent PCI. Summit participants felt a STEMI Receiving System in San Diego was appropriate and would improve care of STEMI patients. This group evolved into a permanent Cardiology Advisory Committee through County Emergency Medical Services (EMS).

The County Board of Supervisors authorized EMS to go ahead with the new system, and criteria were developed for receiving centers, which include staffing and data collection requirements. Thirteen hospitals were surveyed and are now designated as STEMI receiving centers.

Improved door-to-balloon times are achieved by systems to rapidly activate cardiologists and cath lab personnel when a STEMI patient is identified in the field and focus on reducing times. To this point, the EKG interpretation is communicated verbally to the hospital by paramedics. At several hospitals, however, Tri-City, Palomar, and Scripps Encinitas, equipment is in place for transmission of the actual EKG to the hospital so the emergency department physician can interpret the EKG. Palomar Medical Center pioneered this use. Computer interpretation does lead to some false positive readings with unnecessary activations, and transmission improves the accuracy.

Since direct transport to a STEMI receiving center will be limited to patients with documented STEMI in the field, the

PRACTICE ANNOUNCEMENT

ADULT & PEDIATRIC SLEEP DISORDERS

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TEL (858) 623-3266
FAX (858) 630-2426
www.SanDiegoSleep.com

Education and Training

- M.D. (1994) University of Kansas.
- Psychiatry Residency (1994–1998) University of New Mexico.
- Sleep Disorders Fellowship (1998–2000) University California, San Diego, School of Medicine.

Board Certifications

- Diplomate, American Board of Psychiatry and Neurology (2000).
- Diplomate, American Board of Sleep Medicine (2002).

Academic Appointment

- Assistant Clinical Professor. University of California, San Diego, School of Medicine.

Clinical Affiliations

- Staff Physician. Scripps Memorial Hospital, La Jolla, California.
- Staff Physician. Pomerado Hospital, Poway, California.
- Member Physician. Ximed Medical Group.

Professional Memberships

- San Diego County Medical Society.
- California Medical Association.
- Fellow, American Academy of Sleep Medicine.

Selected Awards

- Lilly Fellowship Award (1997) Society of Biological Psychiatry.
- Glenn Foundation Endocrinology and Aging Award (1998) Endocrine Society.
- President's Award (2005) San Diego Psychiatric Society.

San Diego County Health Statistics

[March 2007]

DISEASES OF THE HEART are the leading cause of death in San Diego County for both men and women. In 2004, the age-adjusted rate for the total San Diego County population is 187.2 deaths per 100,000 population. "Diseases of the heart" includes hypertensive and ischemic, as well as rheumatic disease, pulmonary heart disease, diseases of the valves or electrical conduction. (ICD-10 codes I00-I09, I11, I13, I20-I51)[1].

IN FISCAL YEAR 2005-2006, there were 900 emergency department discharges for coronary heart disease (CHD) in San Diego County. The age-adjusted rate is 31.0 discharges per 100,000 population. CHD refers to hypertensive and ischemic heart disease (ICD-9 codes 402, 410-414, 429.2)[2]

TO REQUEST ADDITIONAL health statistics describing health behaviors, diseases, and injuries for specific populations, health trends, and comparisons to national targets, please call the County's Community Health Statistics Unit at (619) 285-6479. To access the latest data and data links, including the regional community profiles and core public health indicators document, go to www.sdhealthstatistics.com.

[1] "Leading Causes of Death by Sex, 2004," County of San Diego, HHSA, Community Epidemiology, Death Statistical Master Files.

[2] Hospital Association of San Diego & Imperial County, Community Health Improvement Partners, County of San Diego, HHSA, Emergency Medical Services, Emergency Department Database.

number of patients should be relatively small, on the order of 300–400 patients each year triaged from the field. Emergency department physicians will have the ability to activate 911 to immediately transfer walk-in patients or patients who develop a STEMI after arrival. For walk-in patients at non-STEMI receiving center hospitals, the decision whether to treat onsite with IV thrombolytics or transfer for PCI will be made by the emergency physician in consultation with the cardiologist.

Emergency medical services responds to about 11,000 patients each year with chest discomfort that is considered to be cardiac in origin, and the destination of the vast majority of those patients will remain the same. Patients are transported to their hospital of choice, or, if they do not have a preference or are too unstable to go farther, they are taken to the closest facility. Cardiac arrest patients will continue to go to the closest hospital. STEMI patients in cardiogenic shock manifested by hypotension and other signs of shock will be taken to a STEMI receiving center, since they benefit the most from an invasive approach with PCI.

The newly formed Cardiology Advisory Committee will continue in existence to review the resulting door-to-balloon times and patient outcomes. The committee will serve as a focal point for improvement processes to assure door-to-balloon times are acceptable and as short as possible. The members will also consider other changes in cardiac care to improve patient care.

For questions, comments, or suggestions regarding the system, please contact Dr. Bruce Haynes at (619) 285-6429 or bruce.haynes@sdcounty.ca.gov.

ABOUT THE AUTHOR: Dr. Haynes is the Emergency Medical Services (EMS) medical director for the County of San Diego. He joined EMS as interim medical director in February 2006 and assumed the permanent position in August 2006. Previously, he was EMS medical director in Orange County for 14 years and was director of the state EMS authority for four years. He trained in emergency medicine.

Web Exclusive

Helping Patients Prepare for Disaster

Hurricane Katrina and Beyond

By Holly Porter and Stasia Place

There are images from the aftermath of Hurricane Katrina that will remain etched in our collective memory for all time. As experts continue to scrutinize, analyze, and create corrective action plans in the wake of the response, there is one simple truth that should not be lost: People have to be better prepared to ride out any major emergency. As medical care professionals, you are in a unique position to provide guidance to the most vulnerable of our neighbors: those that require additional assistance.

Living in an area far removed from traditional hurricane hot spots, it may be easy to assume that an event like Hurricane Katrina could not happen in our community. However, our region is not without its fair share of disaster threats. In addition to the widely publicized possibility of earthquakes and fires, residents should also be prepared for more common, everyday emergencies like water main breaks and power outages. A truly successful emergency response effort is predicated on a proactive, prepared public.

Individuals who are medically fragile require extra planning to ensure their personal preparedness. As medical professionals, you consult with this population on a regular basis and learn the individual challenges facing each patient. This, coupled with the trust you elicit from those you assist, lends well to a successful, motivating conversation about disaster preparedness. Providing education and advising your patients of the necessity for emergency preparedness will require a small sacrifice of time. The payoff, however, will be life-changing, if not life-saving, for your patients.

The County of San Diego Office of Emergency Services can provide your office with family disaster plans. However, simply offering or providing literature cannot replace the value of a face-to-face conversation with your patients. Please discuss these Federal Emergency Management Agency (FEMA) recommendations — www.fema.gov/plan/prepare/specialplans.shtm — with your special-needs patients:

- Learn what to do in case of power outages and personal injuries. Know how to connect and start a back-up power supply for essential medical equipment.
- Consider getting a medical alert system that will allow you to call for help if you are immobilized in an emergency. Most alert systems require a working phone line, so have a back-up plan, such as a cell phone, for times when regular landlines are disrupted.
- Have a manual wheelchair for backup or a generator, if you use an electric wheelchair or scooter, in order to recharge your wheelchair or scooter.
- Teach those who may need to assist you in an emergency how to operate necessary equipment. Also, label equipment and attach laminated instructions for equipment use.
- Store back-up equipment (mobility, medical, etc.) at your neighbor's home, school, or workplace.
- Arrange for more than one person from your personal support network to check on you during an emergency. There should be at least one backup to your primary emergency contact.
- Plan ahead for someone to convey essential emergency information to you if you are unable to use the television or radio because you are vision-impaired, deaf, or hard of hearing.
- Check to see if your personal care attendant from an agency has special provisions for emergencies (e.g., providing services at another location should an evacuation be ordered).
- Ask management of your apartment complex to identify and mark accessible exits and access to all areas designated for emergency shelter or safe rooms. Ask about

People have to be better prepared to ride out any major emergency. As medical care professionals, you are in a unique position to provide guidance to the most vulnerable of our neighbors.

plans for alerting and evacuating those with disabilities. Do the same if you are a homeowner.

• Have a cell phone with an extra battery. If you are unable to get out of a building, you can let someone know where you are and guide them to you. Store the numbers you may need to call if the 9-1-1 emergency system is overloaded. A whistle can be used to alert emergency responders to your location. You can call 2-1-1 for general disaster information and to access resources.

• Learn about devices and other technology available (e.g., PDAs, text radio, pagers) to assist you in receiving emergency instructions and warnings from local officials.

• Be prepared to provide clear, specific, and concise instructions to rescue personnel. Practice giving these instructions (i.e., verbally, pre-printed phrases, word board). Prepare your personal support network to assist you with reactions and emotions associated with disaster and traumatic events (i.e., confusion, thought processing and memory difficulties, agitation, fear, panic, and anxiety).

• Encourage others to be prepared and consider volunteering or working with local authorities on disability and other special-needs preparedness efforts.

Providing education and advising your patients of the necessity for emergency preparedness will require a small sacrifice of time.

During a large-scale emergency, nearly every first responder organization will be operating at or beyond full capacity. Hurricane Katrina demonstrated the consequences of a community unprepared and ill-equipped to respond to a massive disaster. Therefore, it is imperative that each of us take action to ensure the safety of those most vulnerable during a time when our help will be needed most. For more information on personal preparedness, please visit www.sdcounty.ca.gov/oes.

San Diego County Health Stats

1) In 2006, the number of San Diego County residents receiving in-home support services was 23,660[1].

2) In 2006, the number of San Diego County residents ages 65+ with disabilities was 124,205 and those with disabilities ages 6–64 was 324,385[2].

To request additional health statistics describing health behaviors, diseases, and injuries for specific populations, and health trends and comparisons to national targets, please call the County's Community Health Statistics Unit at (619) 285-6479. To access the latest data and data links, including the Regional Community Profiles document, go to SDHealthStatistics.com.

1) County of San Diego, Health & Human Services Agency, Aging and Independent Services.
2) San Diego Association of Governments.

ABOUT THE AUTHORS: Last fall Holly Porter began working as the public information specialist for the San Diego County Office of Emergency Services. Her professional experience includes television reporting in her home state of Florida and working as public relations manager for two large health-related organizations. Stasia Place, emergency services coordinator, has been with the Office of Emergency Services for more than two years. She has various responsibilities related to the preparedness of San Diego County residents, including planning activities for special needs populations.

Web Exclusive

Genital Ulcers: Could It Be Syphilis?

By Robert A. Gunn, MD, MPH, STD Control Officer

The answer to the above question ten years ago would have been "not very likely," since, at that time, syphilis was at near elimination levels in San Diego County. During the late 1980s through 1991, San Diego experienced a syphilis outbreak primarily among African Americans related to crack cocaine and prostitution, which peaked with 421 cases of infectious syphilis (primary or secondary stage) reported in 1988. Cases quickly subsided in 1992, and during the mid-1990s only 25 cases of infectious syphilis were being reported annually. In 1999, the CDC was confident that syphilis was on the verge of elimination and officially launched a campaign to accomplish this. However, Treponema pallidum, the spirochete bacteria causing syphilis, was not going to succumb without a fight.

TRENDS

Since 1997, syphilis began increasing among men who have sex with men (MSM) first in Seattle, followed by San Francisco, Los Angeles, and, finally, San Diego in the latter half of 2002. Since then, cases continue to increase in San Diego — provisional 2006 data indicate 232 reported primary and secondary (P&S) cases, which is up 20 percent from 193 reported in 2005, and overall up more than 700 percent since 2001. The majority (75 percent) of reported cases were MSM, and, among them, 56 percent were HIV positive. Drug use (41 percent), especially methamphetamine (27 percent), and a history of having multiple, often anonymous, sex partners (68 percent) are the risk characteristics of reported cases. Control of syphilis and other sexually transmitted diseases (STDs) is important because these infections facilitate the risk of transmission of HIV two to threefold.

DIAGNOSIS

How can practicing physicians help stem this outbreak? The hallmark of syphilis control is a biomedical approach: prompt identification, treatment, reporting, and partner services for persons with infectious syphilis. Primary syphilis is the most infectious stage and probably accounts for most transmission (secondary stage is also infectious if the patient has condyloma [moist, wart-like lesions in the genital area] or mucus patches in the mouth — both lesions contain numerous spirochetes). During the primary stage, which lasts approximately three weeks, the patient develops a painless, indurated, clean, solitary ulcer (classic syphilitic ulcer) that is teaming with transmissible spirochetes. This ulcer often goes unnoticed if it is in the anal, rectal, oral, or vaginal area. Females have contributed substantially to heterosexual transmission because of "occult" vaginal primary ulcers, and, likewise, among MSM, "occult" lesions in the anal, rectal, or oral cavity maintain a reservoir of silent transmissible infectious spirochetes. In addition, in an uncircumcised male, there is always a possibility that a primary lesion under the foreskin may go unnoticed. It is important to note that the classic presentation as described probably occurs less than 50 percent of the time. Syphilitic ulcers can be multiple, shallow, and sometimes painful.

The hallmark of syphilis control is a biomedical approach: prompt identification, treatment, reporting, and partner services for persons with infectious syphilis.

Currently, syphilis needs to be moved up on the list of potential causes of a genital ulcer(s) among MSM and any other patients, especially if they have had a history of prior STDs or have high-risk sexual behavior (information that should be routinely obtained from a sexual health risk assessment). The differential includes genital herpes, which is still the most common cause of genital ulceration, since it is a much more prevalent infection.

TREATMENT

Primary syphilis is a clinical diagnosis based on signs, symptoms, and risk factors. Laboratory confirmation is important, but not essential. T. pallidum can be identified in primary lesions by dark field microscopy, a tool that, though not readily accessible, is available in

the County STD Clinic. The serologic tests for syphilis (STS), such as an RPR or VDRL, are often non-reactive during the first four to seven days of a syphilitic ulcer, and, when reactive, the titer is usually low (less than or equal to 1:8). Clinical diagnosis warrants presumptive treatment with 2.4 million units of long-acting Benzathine penicillin (Bicillin LA). Bicillin CR is a different preparation and is not a recommended treatment (See CDC Treatment Guidelines 2006). For patients with HIV infection, some clinicians treat with 7.2 million units of Bicillin LA (2.4 million units, weekly, for three doses). For patients with a recent onset syphilitic ulcer and a negative RPR, it's worth repeating the RPR in one to two weeks, and often a sero-conversion occurs. Occasionally, early in the primary stage, the confirmatory test (TTPA, FTA, or EIA) is positive before the RPR becomes positive; therefore, ordering both tests can be helpful.

SEROLOGIC FOLLOW-UP

For persons infected with HIV, serologic follow-up is recommended at 3, 6, 9, 12 and 24 months. For non-HIV infected, a follow-up at 6 and 12 months is adequate. Patients usually show a decline in titer rapidly and ideally revert to non-reactive by 12 months, but some persons can remain reactive for many years (serofast). Failure to respond or a titer increase indicates the need for re-treatment and/or a cerebral spinal fluid examination to rule out neurosyphilis. Since the increase of syphilis has occurred among MSM who are HIV-infected, cases of symptomatic early neurosyphilis (NS) are being reported. Patients often present with cranial nerve dysfunction, especially with visual impairment (often unilateral) or decreased hearing, or with signs of subacute meningitis (headache, altered mental status), or rarely as a cerebral vascular accident. In San Diego, about 7–10 symptomatic early NS cases are reported each year.

SEX PARTNER TREATMENT

Prompt treatment of clinically diagnosed primary or secondary syphilis is critical to prevent transmission. In addition, sex partners also need to be promptly treated preventively. The incubation period from exposure to developing an infectious ulcer is approximately three weeks, but may be longer, so there is time to locate and inform partners about their exposure, and to recommend treatment. For partners, preventive treatment is indicated regardless of serologic test results, and waiting for STS results before treatment should not be done. It is actually most important to identify and treat sex partners before they have evidence of syphilis infection, and these persons will have a negative STS. The STD control program has well-trained investigators who can confidentially carry out partner services, and we ask treating physicians to encourage their patients with syphilis to cooperate with investigators so that prompt partner services can be provided.

COUNTY STD SERVICES

The County HIV, STD, and Hepatitis Branch operates STD clinics five days a week at the Health Services Complex and at other locations in Public Health Centers throughout the county (one to two days per week). Call (619) 692-8550 for hours and location. Patients can receive STD screening, STD treatment, HIV testing, and hepatitis B vaccination (based on risk), and the nominal fee ($15) can be waived if patients cannot pay. Clinicians with a question about syphilis or other STDs can call Robert A. Gunn, MD, MPH [(619) 692-8614, robert.gunn@sdcounty.ca.gov] or call the STD clinic and ask to speak to a nurse practitioner or physician on call. Cases can be reported by phone [(619)-692-8501], or by faxing [(619)-692-8543] or mailing a Confidentiality Morbidity Report (CMR) (STD Control Mail Stop, P511-D, 3851 Rosecrans Street, San Diego, California 92110). An STD/hepatitis update email is periodically distributed to clinicians (approximately four to five times per year). To add your name to the distribution list, contact Craig Sturak, (619) 692-8369, or fax, (619) 296-2607, or send an email to: craig.sturak@sdcounty.ca.gov . Copies of the Physicians' Bulletins (STDs) or STD Annual Fact Sheets can also be obtained by contacting Mr. Sturak.

KEY POINTS

- Syphilitic ulcers (primary stage), the most infectious stage, lasts three or more weeks.
- Syphilitic ulcers are usually painless and can pass unnoticed (occult lesions) if located in the oral, anal, rectal, or vaginal area.
- Syphilitic ulcer is a clinical diagnosis based on signs, symptoms, and risk behavior.
- Serologic tests are often non-reactive during the first four to seven days after onset.
- Presumptive treatment with long-acting penicillin (Bicillin LA) should be given if clinical suspicion is high. ■

SAN DIEGO COUNTY HEALTH STATISTICS

- Infectious syphilis (primary and secondary stage) has increased more than 700 percent since 2001 from 27 reported cases to 232 in 2006. More than 90 percent of cases are males, mostly among men who have sex with men who are often also HIV-positive.
- Gonorrhea has increased steadily since 1999, and rectal gonorrhea among males has increased more than 300 percent since 2000.

To request additional health statistics describing health behaviors, diseases, and injuries for specific populations, health trends and comparisons to national targets, please call the County's Community Health Statistics Unit at (619) 285-6479. To access the latest data and data links, including the Community Profiles and the 2004 Core Public Health Indicator document, go to www.sdhealthstatistics.com.

ABOUT THE AUTHOR: Robert A. Gunn, MD, MPH, is the County of San Diego Health and Human Services Agency STD control officer, HIV, STD, and Hepatitis Branch. He is adjunct professor at UCSD, department of family preventive medicine and also adjunct faculty at SDSU Graduate School of Public Health. Dr. Gunn recently retired from the U.S. Public Health Service after serving 30 years with the Centers for Disease Control and Prevention.

Public Health

National HIV Testing Day

JUNE 27, 2007 BY TERRY CUNNINGHAM

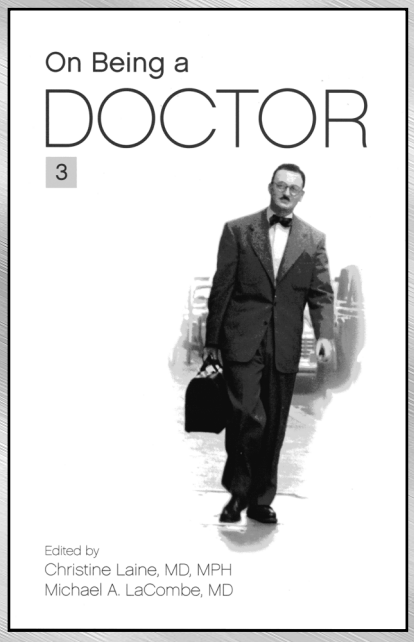
THERE IS SIGNIFICANT documentation to show that the life expectancy of individuals testing positive for HIV is almost two and a half decades. Even for people diagnosed at later stages of AIDS, current treatments are providing them with as much as an additional 15 years of life. This alone is cause to celebrate. This is a much different picture from what was seen in the beginning of the epidemic when hearing the news that being HIV positive was the same thing as a death sentence.

June 27, 2007, will be lucky 13 for National HIV Testing Day. There will be a national "push" for people to find out their HIV status. As always, testing remains free and will be available at many sites around San Diego County. This is a perfect time for medical professionals to remind their patients to get tested. Since the beginning of the epidemic locally, more than 13,000 men, women, and children have been diagnosed with AIDS. Currently, there are approximately 15,000 individuals living with AIDS or HIV disease in San Diego County. Unfortunately, an additional 3,500 people do not know that they have been infected. Of those who do know that they have HIV, more than 57 percent are in treatment. That still leaves 43 percent not on lifesaving antiretroviral medications.

> There are approximately 15,000 individuals living with AIDS or HIV disease in the County of San Diego. Unfortunately, an additional 3,500 people do not know that they have been infected.

While determining or knowing one's HIV status is not the cure-all for this epidemic, this knowledge provides the necessary information needed for patients to make informed decisions about seeking healthcare. All of San Diego County testing sites offer referrals to HIV specialty primary care, partner notification, and treatment options. Approximately 40 percent of new cases are spread because the infected partner did not know his or her HIV status. Either the individual had never been tested or had been tested during the "window period" of the disease. The available HIV tests will show that a person is HIV positive between six weeks and six months after initial infection. During the "window period," the individual will test negative and may continue to have unsafe sex while actually being highly infectious to others.

Here at the County of San Diego, we are partnering with the Antiretroviral Center



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(AVRC) at UCSD Medical Center to bring Nucleic Acid Testing (NAT) to the populations most impacted by AIDS/HIV disease. This pilot program was started in February 2007. Individuals at high risk for HIV infection coming in for testing at the center and who test negative are asked if they would like to participate in a study to determine if they are in the "window period" of the disease. If consent is given, a tube of blood is drawn and a NAT is performed. The results of the test are available within one week and are given in person to the tested individual. This highly sensitive test can determine early infection — as early as one week.

Historically, in 2002, the Food and Drug Administration (FDA) licensed the first NAT system intended for screening donors of whole blood and blood components intended for use in transfusion. The approved test system was developed by Gen-Probe Inc. of San Diego and is distributed by Chiron Corp. of Emeryville, Calif. Blood donors have been tested for evidence of HIV infection since 1985 and for evidence of HCV infection since 1990. Although increasingly sensitive tests for detection of HIV and HCV antibodies and HIV antigen were implemented during the past decade, in rare instances infections in donors had been missed.

The NAT system detects viral genes rather than antibodies or antigens (proteins from the virus). Detection of viral genes permits detection earlier in the infection since the appearance of antibodies requires time for the donor to develop an immune response, and since detection of antigens requires time for a higher level of virus to appear in the bloodstream.

This new technology detects very small amounts of genetic material by copying the genes numerous times, resulting in a billion-fold amplification of the target gene. The approved test system can detect ribonucleic acid (RNA) from HIV-1, as well as HCV. This allows for the detection of all known HIV-1 subtypes with sensitivities designed to reduce the window period of false negative results from standard HIV testing. For HIV-1, the average window period with antibody is 22 days. This window period is reduced approximately to 16 days with antigen testing and to 12 days with NAT. The NAT is currently used universally to screen blood donations for transfusion in the United States.

We are also working on a grant with AVRC to expand this program to multiple sites in the county. Since research has shown that those who know their HIV status are more likely to inform and protect

San Diego County Health Stats

- As of March 1, 2007, 13,999 cases of AIDS were reported in San Diego County[1].
- One in 300 citizens in San Diego has either AIDS or HIV disease[1].

To request additional health statistics describing health behaviors, diseases and injuries for specific populations, health trends and comparisons to national targets, please call the County's Community Health Statistics Unit at (619) 285-6479. To access the latest data and data links, including the Community Profiles with the most current health indicator information, visit www.sdhealthstatistics.com.

1) County of San Diego, Health and Human Services Agency, HIV/AIDS

their partners, it is believed that NAT testing has the potential for significant reduction in the spread of HIV. The number of lives that will be saved from HIV infection and the amount of money that will be saved from halting the spread of HIV will be evaluated by this program.

Please recommend that patients who engage in risky sexual practices obtain HIV testing. Patients can also contact the County of San Diego HIV Counseling and Testing Program, at (619) 296-2120, to find the sites that are offering the NAT for HIV.

ABOUT THE AUTHOR: Mr. Cunningham has been the chief of the HIV, STD, and Hepatitis Branch of Public Health Services for the County of San Diego for the past eight years.

The Long-term Acute Care Hospital

BY NATALIE GERMUSKA

THE CONCEPT OF the long-term acute care (LTAC) hospital was created over 20 years ago for a unique type of patient. Typically medically complex, this patient required the care that skilled nursing centers or conventional short-term hospitals were not equipped to provide, including specialized treatment plans, ventilator management and weaning, and prolonged recovery time.

Two decades later, the healthcare industry has changed even more dramatically — a multi-day stay in a short-term acute care hospital is increasingly uncommon. And the LTAC hospital has taken an established role in the post-acute healthcare continuum in providing care for these critically ill patients.

Most LTAC hospitals feature an interdisciplinary environment where physicians, nurses, therapists, nutritionists, and social workers combine their expertise to provide quality care. While the LTAC hospital primarily cares for ventilator-dependent individuals, all acutely ill patients are considered for admission. Services may include the following:

Pulmonary Services: ventilator management and weaning; trans-tracheal augmented ventilation; care for patients with COPD, emphysema, asthma, pneumonia, and others; end-tidal carbon dioxide monitoring; pulse oximetry; tracheostomy management; endotracheal tube management; fiber optic bronchoscopy; airway decannulation; Passy-Muir valve placement and management; chest percussion therapy; and inspiratory muscle training.

Critical Care Services: pre- and post-transplant care; infectious disease management; multi-organ failure management; central line placement; intravenous medication therapies; chest tubes; cardiac monitoring — post-myocardial infarction; and vasopressor management.

Wound Care Services: management of complex wounds, including diabetic and decubitus ulcers; treatment of complications associated with abscess or osteomyelitis; and management of post-surgical healing complications.

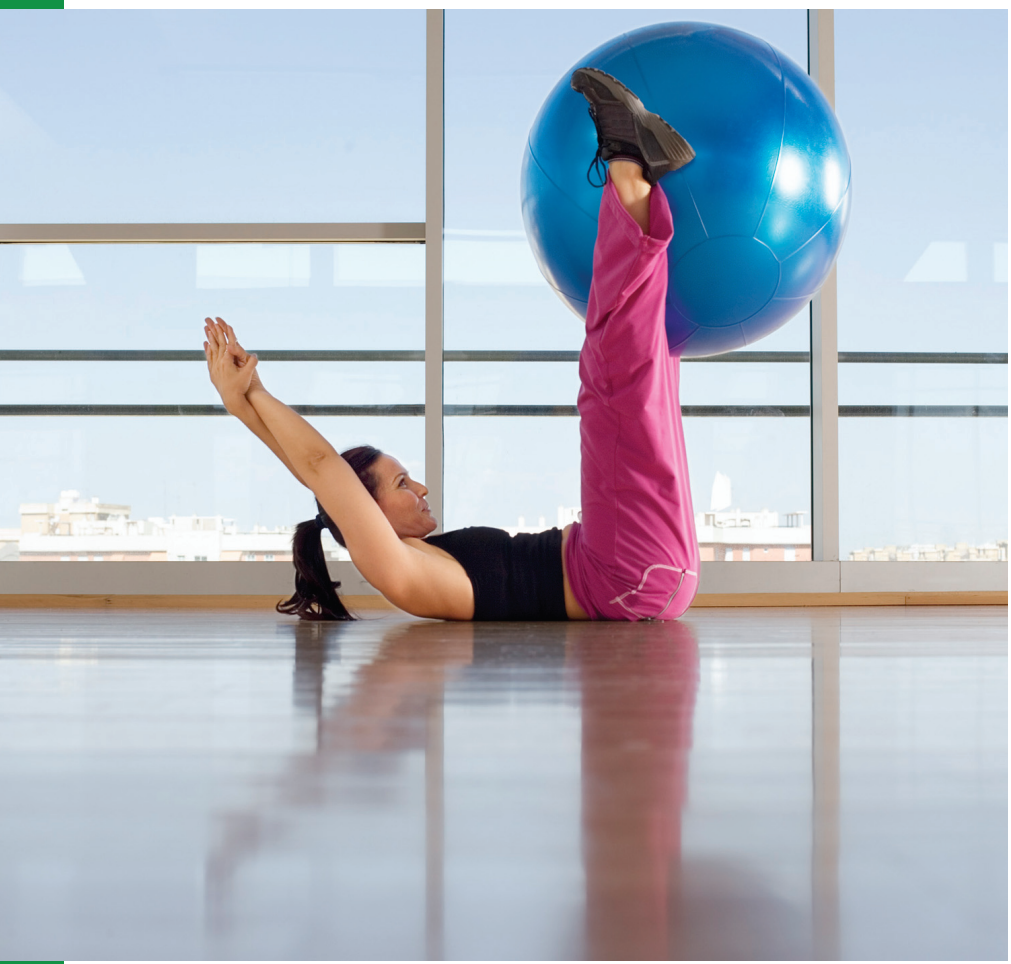
Rehab Services: coma stimulation; video swallow studies; reconditioning and restorative services; occupational therapy; speech therapy; and physical therapy.

Additional Services: special procedures/surgery; blood bank; EKG; TPN and other nutritional support; dialysis; ultrasound; indirect calorimetry; and diagnostic endoscopy.

An LTAC hospital can be a freestanding facility as well as a "hospital-in-hospital," located inside a large short-term facility. LTACs are certified by Medicare and by The Joint Commission (formerly JCAHO).

As the nation's healthcare system continues to evolve, the unique value of the LTAC hospital in the post-acute continuum becomes more evident from an economic as well as clinical perspective.

ABOUT THE AUTHOR: Ms. Germuska is the CEO of Kindred Hospital San Diego, a long-term acute care (LTAC) hospital where services also include trans-tracheal augmented ventilation as part of a national study in conjunction with Respironics.



Preconception Healthcare

IT'S NOT JUST ONE SPECIAL VISIT

BY GAYLE WHITE, MPH, RN & SHURKI ADAM, MHCA, PHN

A young woman's health and lifestyle choices can affect her future pregnancies as well as her own well-being for the rest of her life. Ideally, consideration of health status and potential effects on pregnancy should be a component of every encounter with a woman of childbearing age in the healthcare setting. It is an essential aspect of women's health that is easily overlooked both by healthcare providers and their patients.

Waiting until a woman is pregnant to address risks may be too late. For example, many birth defects occur in the first weeks of gestation before the woman even knows that she is pregnant. In addition, many behaviors and lifestyle choices affect birth outcomes, such as smoking, high-risk sexual behavior, drug or alcohol use, lack of activity, and inadequate nutrition. Addressing behavior changes before pregnancy allows a woman more time to modify her risk than if she learns about it at a first prenatal care visit. Finally, both chronic and infectious diseases can impact a pregnancy. Establishing good medical control and educating the woman about her condition before pregnancy is likely to be easier and more effective than beginning treatment (perhaps with limited options) after a pregnancy has begun.

Risks related to poor pregnancy outcomes are relatively common. In 2002, 54 percent of women ages 18–44 consumed alcohol in the past month (with 13 percent either daily or binge drinkers), 44.8 percent did not take folic acid or a multivitamin daily, 75 percent consumed fewer than five daily servings of fruits and vegetables. That same year, about 6 percent of women, aged 15–44 years, had asthma; 50 percent were overweight or obese; 3 percent had heart disease; 3 percent were hypertensive; 9 percent had diabetes; and 1 percent had a thyroid disorder. Over the course of the 20th century, the United States saw a dramatic and steady drop in both maternal and infant mortality, reflecting general public health interventions such as clean water and control of infectious diseases, as well as improvements and technological advances in prenatal care, and particularly in neonatal care. For the past decade, the decline in infant mortality has slowed, and the rate of maternal mortality has increased slightly. The rate of preterm and low-birthweight births has also increased. These trends are generally seen in national, state, and local data. Research suggests that improving women's health before pregnancy may be key to achieving further reductions in infant mortality. There is clearly room for improvement: The United States ranks 27th in the world in infant mortality.

Recognition that a woman's health is important before her first pregnancy — and between pregnancies — is not new.

In addition to references in Greek writings and in the *Old Testament*, the professional literature includes references to preconception health as far back as 1978. *The Guidelines for Perinatal Care,* published in 1983 by the American Academy of Pediatrics (AAP) and the American College of Obstetricians and Gynecologists (ACOG), included an appendix with guidelines for a preconception visit when pregnancy is planned. By the 2002 edition, the topic of preconception had moved from an appendix to the main text, emphasizing integrating preconception health promotion into all health encounters with women of childbearing age.

The fact that about half of all pregnancies in the United States are not planned supports moving the concept of preconception health from a special visit with an OB, when a woman is planning to become pregnant, to the more general inclusion in all health encounters. A woman who is not considering becoming pregnant is unlikely to seek preconception care, and her provider is unlikely to offer it. In 2004, surveys of 1,105 ACOG members and women of childbearing age receiving care in private primary care practices showed that only 34 percent of physicians recommend preconception care to women who are sexually active, and only 39 percent of women could recall their physician ever discussing this topic with them.

In 2005, the Centers for Disease Control and Prevention (CDC) and the March of Dimes convened the first national summit on preconception care, which attracted more than 400 healthcare providers, public health practitioners, and researchers. The topic is now receiving serious attention throughout the nation. Following the summit, a collaboration of 35 partner organizations, including several physician groups, is starting to take action toward 10 broad recommendations developed by summit participants. This complex issue will require clinical interventions, research, surveillance, community education, action at the individual level, and policy changes, including financing and reimbursement issues.

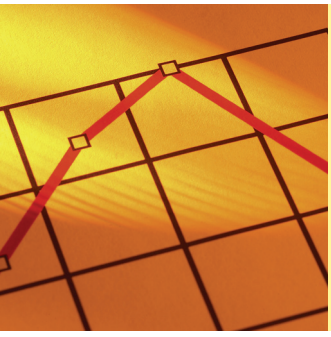
In the meantime, clinicians can consider ways to integrate attention to women's health as it affects future pregnancies into every encounter with women of childbearing age. Efforts by family practice, internal medicine, pediatrics, and dental providers as well as obstetricians and gynecologists can help impact the long-term health of women and babies. What can you do?

- Make sure women of childbearing age have information about what they can do themselves to reduce risk, such as maintaining adequate physical activity and nutrition, including folic acid; using reliable family planning methods to avoid unintended pregnancies; and maintaining good oral health.
- Identify and manage health risks related to poor pregnancy outcomes.
- Assess and provide counseling and resource information on lifestyle factors.

County Health and Human Services Agency (HHSA), Public Heath Services (PHS) has developed some innovative client education materials about preconception health and resources, which include information about local resources. The Maternal, Children, and Family Health Services Branch (MCFHS) of PHS is working to distribute these materials to healthcare providers and community organizations that serve women of childbearing age. For more information about these materials and integrating preconception health into your practice, contact Shukri Adam, PHN, at (619) 692-8453 or at Shukri.Adam@sdcounty.ca.gov. Information is available online at www.cdc.gov/ncbddd/preconception/QandA_providers.htm and at www.marchofdimes.com/professionals.

NOTE: For a list of references, email Editor@SDCMS.org.

ABOUT THE AUTHOR: Ms. White has been with the Maternal, Child, and Family Health Services Branch of Public Health Services for six years. As the maternal child health coordinator, she oversees the county's state-funded programs that address improved perinatal outcomes: the Perinatal Care Network, Fetal Infant Mortality Review Program, and Black Infant Health. Ms. Adam has been with Maternal, Child, and Family Health Services for three years, working on special projects. She provides information to medical offices and clinics about incorporating key preconception health services and education into all care for women of childbearing age.



SAN DIEGO COUNTY HEALTH STATISTICS

IN 2002, 42 PERCENT of the mothers who gave birth in San Diego County reported they had not intended to be pregnant[1]. For the three years 2002–2004, the infant mortality rate for all births to San Diego County residents was 4.8 deaths per 1,000 live births. For African-Americans, the rate was 12.8 deaths compared to 4.4 for whites, 4.5 for Hispanics, and 3.2 for Asians[2].

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REFERENCES: 1) State of California, Department of Health Services, Maternal Child and Adolescent Health Branch Maternal and Infant Health Survey, 2002. 2) State of California, Department of Health Services, Center for Health Statistics, Birth and Death Statistical Master Files. Prepared by County of San Diego, Health and Human Services Agency, Maternal, Child and Family Health Services (MCFHS).

Prescription Errors

By JEREMY WESOLOWSKI, PhD, RPh

THE PROBLEM

IN PAST DECADES, medical errors — and the link to patient safety — have received a great deal of attention. In November 1999, the Institute of Medicine (IOM) released a report estimating that as many as 98,000 patients die as the result of medical errors in hospitals each year. More recently, the Food and Drug Administration (FDA) estimates that in the United States, medication errors cause at least one death every day and annually may injure about 1.3 million individuals. According to Dr. Carmen Catizone, executive director of the National Association of Boards of Pharmacy, it is estimated that there are as many as 7,000 deaths annually in the United States from incorrect prescriptions. Furthermore, mistakes in giving drugs are so prevalent in hospitals that, on average, a patient will be subjected to a medication error each day.

DEFINITION OF MEDICATION ERRORS

THE NATIONAL COORDINATING Council for Medication Error Reporting and Prevention defines a medication error as "any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the healthcare professional, patient, or consumer." The IOM defines medication errors more broadly as any mistake made in diagnosis or treatment. One category of medical errors is defined as mistakes made in prescribing, transcribing, dispensing, administering, or monitoring medication. Mishaps or errors can occur at any point in the medication distribution system. Commonly, causes of such errors include poor communication, ambiguities in product names, directions for use, medical abbreviations or writing, poor procedures or techniques, or patient misuse because of poor understanding of the directions for use of the product.

THE FOURTH IOM COMMITTEE AREPORT ON MEDICATION ERRORS

IN REFERENCE TO the fourth publication of the *Quality Chasm* series on medication errors, on July 20, 2006, the chair of the IOM Committee on Identifying and Preventing Medical Errors commented on their report. It was noted that "medication errors are among the most common medical errors, harming at least 1.5 million people every year … the extra medical costs of treating the drug-related injuries occurring in hospitals alone conservatively amount to $3.5 billion a year." Dr. Linda R. Cronenwett, dean and professor at the University of North Carolina in Chapel Hill School of Nursing and a committee member and co-author of the report, cited that there is cause for concern regarding the frequency of medication errors and

preventable drug events. Other experts on the committee stated that there is a need for a comprehensive approach to reducing errors that involves not only federal agencies and healthcare organizations, but also the industry as well as consumers. Recommendations from the committee are provided to ensure that consumers are fully informed about how to safely take medications and achieve the desired results. Equally, the recommendations are intended to aid healthcare providers with the tools and data necessary to prescribe, dispense, and administer drugs as safely as possible and evaluate patients for problems.

IOM COMMITTEE RECOMMENDATIONS

THE COMMITTEE RECOMMENDATIONS call for all prescriptions to be written electronically by 2010 and suggest ways to improve the naming, labeling, and packaging of drugs to reduce confusion and prevent errors.

The American Hospital Association lists the following as some common types of medication errors:

- Incomplete patient information — not knowing the patient's allergies, other medications they are taking, previous diagnoses, and lab results;
- Miscommunication of drug orders — this can involve poor handwriting, confusion between drugs with similar names, misuses of zeroes and decimal points, confusion of metric and other dosing units, and inappropriate abbreviations;
- Unavailable drug information — lack of up-to-date warnings;
- Lack of appropriate labeling — as a drug is prepared and repackaged into smaller units;
- Environmental factors — such as light, heat, noise, and interruptions that can distract health professionals from their medical tasks.

WHAT ELSE CAN PROVIDERS DO?

THERE ARE NO easy answers to such a complex problem when more than three billion prescriptions are written per year; most of these prescriptions are written by hand and are illegible. A summary of recommended measures from the FDA, IOM, and others provide specific measures for reducing medication errors. These recommendations call for providers to utilize:

- Computer physician order entry — improve legibility;
- Timely, complete access to prescribers regarding patient allergies, previous diagnoses, and critical lab results;
- Medication reconciliation to ensure all medications taken by patients are known to healthcare staff;
- Medication and patient bar coding to ensure that the right drug is given to the right patient;
- Robotic medication dispensing;
- Widespread use of pharmacy information systems to alert prescriber to drug-drug, drug-food, and drug-herbal interactions.

Until these measures become widely implemented, the consumer must take adequate precautions to safeguard his or her health from medication errors.

WHAT CAN CONSUMERS DO?

CONSUMERS AND THEIR family members can protect themselves against such errors by taking the following steps:

- Read the prescription the doctor gives you aloud. Ask the physician to confirm it;
- Verify the dosages and drug names with the doctor;
- Before going to the pharmacy, write down the dosage and the drug name;
- Best to go to a well-staffed pharmacy, i.e., one that has more than one single pharmacist working with a clerk and technician helpers;
- When you pick up your prescription, check the labels and make sure the dosages and drug names match what you have written down;
- If they do not, get an explanation.

While these suggestions are not foolproof, they provide a good start for consumers to empower themselves to help prevent or reduce medication errors.

TOOLS FOR THE PROVIDER

LAST YEAR, THE FDA, in collaboration with the Institute for Safe Medication Practices (ISMP), launched a nationwide health professional education campaign aimed at reducing the number of common, yet preventable, sources of medication mishaps caused by the use of unclear medical abbreviations. A list of abbreviations, symbols, and dose designations can be found at www.ismp.org/tools/errorproneabbreviations.pdf. Additionally, the FDA and ISMP have provided a toolkit of resource materials available at www.ismp.org/tools/abbreviations.

Becoming aware of the statistics related to medication errors and armed with the tools to decrease such incidents, healthcare providers will help protect the health and safety of their patients.

Note: For a complete list of references for this article, send an email request to Editor@SDCMS.org.

SAN DIEGO COUNTY HEALTHCARE STATS

- IN THE 2005 California Health Interview Survey, 92 percent of San Diego County residents with healthcare coverage reported having prescription drug coverage.
- Forty-five percent of the U.S. population received at least one prescription drug in the past month, while 18 percent received three or more prescription drugs in the past month.

1) California Health Interview Survey, UCLA Center for Health Policy Research, 2005.
2) Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999-2002.

To request additional health statistics describing health behaviors, diseases, and injuries for specific populations, health trends and comparisons to national targets, please call the County's Community Health Statistics Unit at (619) 285-6479. To access the latest data and data links, including the Regional Community Profiles document, go to www.sdhealthstatistics.com.

ABOUT THE AUTHOR: Mr. Wesolowski is chief pharmacist, Health and Human Services Agency, San Diego County Psychiatric Hospital Pharmacy. He has held this position for a year. He has more than 25 years of experience in the management of various U.S. pharmaceutical company branch operations overseas.